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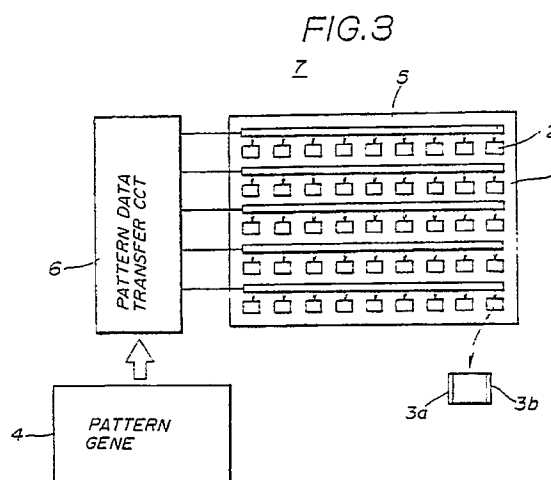
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(54) **Blanking aperture array, method of producing blanking aperture array, charged particle beam exposure apparatus and charged particle beam exposure method.**

(57) A blanking aperture array (1, 19A) for use in a charged particle beam exposure has a substrate (75, 110), at least m rows by n columns of apertures (2, 19c, AP) arranged two-dimensionally in the substrate, where each of the apertures have a pair of blanking electrodes (3a, 3b, 19a, 19b, E1, E2) and m and n are integers greater than one, and n m-bit shift registers (5, 19d) provided on the substrate for applying voltages dependent on pattern data to m pairs of the blanking electrodes of the apertures in the ith column, where i = 1, 2, ..., n. The pattern data is related to a pattern which is to be exposed using the blanking aperture array.





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# EUROPEAN SEARCH REPORT

Application Number

EP 90 40 1329

| DOCUMENTS CONSIDERED TO BE RELEVANT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                      |                                                |                                               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------|-----------------------------------------------|
| Category                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Citation of document with indication, where appropriate, of relevant passages                                                                                                                                                        | Relevant to claim                              | CLASSIFICATION OF THE APPLICATION (Int. Cl.5) |
| A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | FR-A-2 385 222 (WESTERN ELECTRIC)<br>* Page 2, lines 15-18; page 3, lines 2-16; page 4, lines 24-28; page 5, lines 3-28; page 6, line 29 - page 7, line 31; page 10, line 14 - page 15, line 25; claims 1,3,4,7,8; figures 1,2,7,8 * | 1,7,13,19,22-26,28-30                          | H 01 J 37/09<br>H 01 J 37/317<br>H 01 J 37/04 |
| D,A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | JP-Y-5 619 402<br>* Figures 1-5 *                                                                                                                                                                                                    | 1,13,23,28                                     |                                               |
| A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | EP-A-0 221 657 (ATT)<br>* Abstract; column 1, line 52 - column 2, line 27; column 3, lines 13-31; column 5, lines 39-56; column 10, line 7 - column 11, line 30; figures 1,3,4,6-8 *                                                 | 1,13,24,28,29                                  |                                               |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                      |                                                | TECHNICAL FIELDS SEARCHED (Int. Cl.5)         |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                      |                                                | H 01 J 37/00                                  |
| The present search report has been drawn up for all claims                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                      |                                                |                                               |
| Place of search<br>THE HAGUE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                      | Date of completion of the search<br>08-05-1991 | Examiner<br>DAMAN M.A.                        |
| <b>CATEGORY OF CITED DOCUMENTS</b><br>X : particularly relevant if taken alone<br>Y : particularly relevant if combined with another document of the same category<br>A : technological background<br>O : non-written disclosure<br>P : intermediate document<br>T : theory or principle underlying the invention<br>E : earlier patent document, but published on, or after the filing date<br>D : document cited in the application<br>L : document cited for other reasons<br>& : member of the same patent family, corresponding document |                                                                                                                                                                                                                                      |                                                |                                               |